Methods for monitoring work-life balance in a digital world

Conference or Workshop Item

Methods for Monitoring Work-Life Balance in a Digital World

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ABSTRACT

Digital technologies – smart phones, email, social networking, etc. – are fundamentally changing our relationship with work. Digital technologies enable us to be always connected. However, the question remains as to how digital technologies affect our work-life balance. In this position paper, we report on some methods we are using to study how to continuously monitor and observe work-life balance, and discuss the advantages/disadvantages of these methods. Work-life balance is a relatively under-explored area in the quantified self literature; this paper therefore contributes to broader discussions on quantified self but from a domain that has received little attention to date.

Categories and Subject Descriptors

H.5.m [**Information interfaces and presentation (e.g., HCI)**]: Miscellaneous

General Terms

Human Factors

Keywords

Work-Life Balance; Digital Technologies; Quantified Self

1. INTRODUCTION

The rise in the use of digital technologies challenges work life boundaries, particularly as individuals increasingly work from a range of locations [4], experience frequent interruptions [8] and feel required to 'stay connected' through multiple communication channels [7]. Digital technologies bring potential advantages in that they increase the flexibility of work arrangements. On the other hand, they potentially risk exacerbating health and well-being issues due to the perceived pressure to be always 'on'.

The Quantified Self (QS) movement aims to provide insights into an individual or community's behaviour through continual sensing. Work-life balance, however, is an under-explored area in the QS literature. It has been recognised that self-monitoring can have dramatic positive health benefits related to issues such as overconsumption of alcohol or food, or chronic disease management. The benefits related to work-life balance are much less studied. Our aim is to provide individuals with a novel way to monitor their work and non-work activities, thus supporting better regulation of work/non-work transitions.

In this paper, we discuss the methods we are using to monitor well-being issues related to work-life balance. We take a multidisciplinary approach, drawing on social and computer sciences. Our ultimate goal is to design new systems to support work life transitions given the challenges introduced by digital technologies.

The research reported here is part of the Digital Brain Switch project[1], and is a work-in-progress. The paper describes methods we have used so far in collecting data on individuals' work-life issues. We structure the discussion around three key challenges that QS researchers face: (1) The User – what information do users need to better understand their work-life balance? (2) Data – what are the options for collecting this information? (3) Design – how can insights from this data be used to design support systems?

2. BACKGROUND

Work-life balance (WLB) has long been a focus of research [9]. However, with the rapid growth in the use of digital communication technologies, WLB has taken on a new significance [3].

One of the earliest works on WLB in HCI was by Sadler et

[1]http://digitalbrainswitch.co.uk

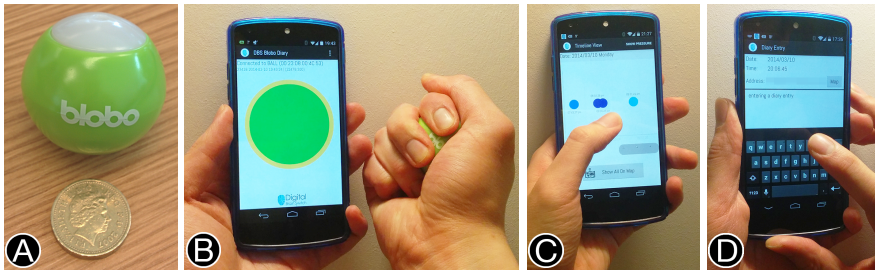

Figure 1: SqueezeDiary: (A) A Blobo squeeze sensor placed next to a British one pound coin. (B) A user squeezes and holds the sensor for a short duration to trigger an event instance. The instance is logged (along with location, temporal and squeeze pressure cues) on a mobile phone. (C) The user reflects on the recorded instance during their downtime, and (D) enters a diary description.

al. [10], who carried out a study2 to observe how Australian freelancers used mobile phones during a production project. They concluded that mobile phones blurred the boundary between work and life. Cousins and Varshney [1] argue that mobile technologies can help people to increase the control over work and personal life. However, current devices are often designed for either work or life. In the future, mobile technologies could be designed to support people's preferences for blurring or defining boundaries. Tablet devices appear to blur the boundary between work and life: they can act as leisure devices, but also as a business tool [12].

Leshed and Sengers examined the relationship between productivity tools and experiences of 'busyness' [6]. They discovered that people struggle with a sense of conflict around busyness, reflected in struggles with anxiety, guilt, and loss of control. As an antidote, Leshed proposed GoSlow [5] an application that encourages pause and introspective reflection.

In terms of QS and WLB, Czerwinski et al. used a spreadsheet as a diary tool for recording how people switch tasks during work [2]. In general, however, self-reporting applications for WLB are rare.

3. METHODS FOR STUDYING WLB

3.1 The User: what information do they want?

To understand WLB issues, we are carrying out a series of video diary studies with three user groups. So far (at the time of writing), we have conducted studies with 15 social entrepreneurs, 12 university students, as well as a pilot study with 11 other participants. Each user is given a portable camcorder for a week and is asked to produce videos of their transitions (or attempted transitions) across work, life, and other possible domains. After each video diary, participants are invited to an interview whose aim is to further explore issues of WLB, what the concept means to them and transitions in relation to technology. Though interviews are open in character, aiming to capture issues that havenÕt been covered in the videos, selected video excerpts are shown to the interviewees who are given a chance to reflect on their own material. The aim of the video/interview study is to collect rich qualitative data that will improve our understanding of the relationship between WLB and digital technologies, involving transitions and attempted transitions. This data is being used to draw insights that can be used to design new QS systems to support WLB (see 3 below). In addition, we have developed an online platform where participants can share their video data with other participants, triggering further discussion within each user group. Hence, the data is meant to provide design recommendations but can also be used by participants to understand their own WLB.

We have found video diaries to be a useful and rich way to collect data on WLB issues. Participants reported benefits from both recording videos and playing them back. Some participants changed habits that otherwise would have gone unnoticed. However, there are logistical challenges related to managing video data: in terms of storage, privacy, and bandwidth. The analysis of video data presents different challenges compared to other data (e.g., text or statistics). It is difficult to get a 'quick and dirty' overview of the data due to a lack of video search or summarization capabilities. Also, in an interview, the researcher is present so already knows what the data contains before undertaking analysis; this is not the case with video diaries.

3.2 Data: how to capture it in novel ways

The video diaries provide rich and abundant qualitative data. We are also experimenting with novel interfaces for capturing WLB-related quantitative data. One of the challenges of QS is the trade-off between sensors that are too time-consuming to use, and sensors that are easy to use but provide too little information. In the context of WLB, we are addressing this by using a small tactile ball interface which individuals squeeze when they are experiencing WLB challenges. We use an off-the-shelf game controller called the Blobo[2], which records pressure levels when squeezed. We have developed our own Android application, called SqueezeDiary (building on the application by Simm et al. [11]), which interfaces with the Blobo through Bluetooth to provide visualizations over time of pressure levels, GPS-tracked locations, and associated diary entries (see Figure 1 for an illustration). Individuals use the Blobo to record WLB conflicting situations; the location of these is tracked automatically along with the severity of the conflict (pressure level). Additional information can optionally be provided as a mobile diary entry. Using the Blobo allows WLB data to be captured in an easy way: the user does not need to access their smartphone; the Blobo can be carried in

[2]http://serious-sports.org/content/blobo

a pocket or on a key-ring and thus provides easy, fast access in real-time. Users can later view visualizations and reflect on conflicting situations over time.

3.3 Design: of a system to support WLB

We are building a system that will allow users to set up their own hypotheses and run their own experiments to understand how behaviour changes can improve WLB. For example: *Alan wonders if he would feel less anxious if he tried to compartmentalise his work-life activities. He logs on to DBS to set up an experiment. He is interested in measuring his self-reported mood level and the number of times he switches between email, social networks, work and life during the day. DBS automatically tracks his email and social network usage. After one month, DBS presents data on correlations between these two variables, allowing Alan to make a lifestyle choice.*

To achieve this life-as-experiment vision, our major challenges have been in converting the data into design features. This is because of the volume of data, which suggests potentially hundreds of design features.

4. SUMMARY

We are applying methods to issues of WLB. We use a mixed methods approach to collect data, involving both video diary/interviews and novel interface (Blobo) methods, and feed insights from this data into the design of a life-as-experiment application to support WLB.

5. ACKNOWLEDGMENTS

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